VERSOLSOLAR®

TRACKING SYSTEM

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Horizontal Single Axis Tracking System

Certificate

Features

※ Versolsolar's single-axis tracking system is scientifically designed and precision calculated to fully guarantee the mechanical strength of each component.

※ The polymer material bearing can effectively prevent sand dust, rain and snow erosion.

※ The anti-shadow design effectively avoids shadow blocking problems in the morning and evening and increases power generation.

※ Intelligent electrical control ensures long-term reliability and easy maintenance.

The Horizontal single-axis tracking system has the advantages of low cost, simple installation and low maintenance cost, which is widely used worldwide. The effect of complementing agricultural light is also very significant. The installation of PV tracking system on agricultural land does not affect agricultural activities, but also makes full use of land resources on agricultural farmland to increase farmers' income and bring higher return on investment.

To better meet customer needs the horizontal single axis system has the following four types:

- V-Push Tracking System
- V-Link Tracking System
- V–IN Tracking System
- V–Multi Tracking System

V–Multi Tracking System

Trackingsystem Technical Data

Drive form: sprocket wheel
Foundation form: Cement foundation, driven steel pile
Nstallation capacity: maximum 150 pcs modules/ row
Module type: all types are applicable
Drive type: Sprocket multi–point drive
Tracking range: ±60°
Module arrangement: two pieces in vertical installation (the long side of the module is perpendicular to the main shaft)
Ground coverage rate: about 30%~50% (according to project requirements)
Minimum ground clearance: 0.5m (track project requirements)

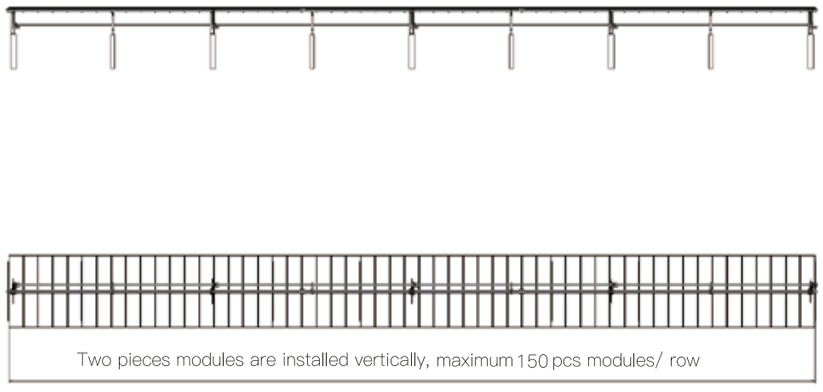
Module string QTY:20PCS(according to power station design)
System Life: more than 25 years
Protection wind speed: 18m/s (according to project requirements)
Wind resistance: 47m/s (according to project requirements)
Warranty period:Tracking system 10 years/controlling cabinet 5 year
Executive standard: “Code for Design of Steel Structures” GB50017; “Building Structure Load Specification” GB50009; “CPP Wind Tunnel Test Report”; UL2703, UL3703, ALSC 360–10, ASCE7–10(according to customer’s requirement)

Electrical system data

Control type: MCU
Tracking accuracy: 0.5°
Protection level: IP66
Ambient temperature: –40℃ –70℃

Power supply type: string power/small module power/AC power
System voltage: 300V~1500V(string power)
Monitoring device: SCADA
Communication: Zigbee/Modbus
System power consumption: about 20kWh/control box/year

Reference size



V–In Tracking System

Tracking system Technical Data

Driving Mode: Sprocket Wheel
Installation Type: Concrete/Driven pile
Installation Capacity: 30kw/array(according to power station design and array arrangement)
Module Type: Crystalline silicon module/Thin film module/Glass-glass module
Driven Type: Sprocket Wheel driven
Tracking Range:±45°/±60°
Module arrangement:One module in vertical/two modules in vertical(according to power station design)
Ground coverage: around 30%-50%(according to customer requirement)
Minimum ground clearance: 0.5m (according to customer requirement)

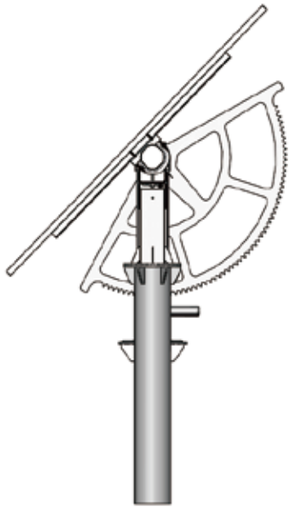
Module string QTY:26PCS(according to power station design)
System life:＞25 years
Protection wind speed:≤18m/s(according to power station design)
Wind resistance:≤37m/s(according to power station design)
Warranty period:Tracking system 10 years/controlling cabinet 5 year
Executive standard: "Code for Design of Steel Structures" GB50017; "Building Structure Load Specification" GB50009; "CPP Wind Tunnel Test Report"; UL2703, UL3703, ALSC 360–10, ASCE7–10(according to customer's requirement)

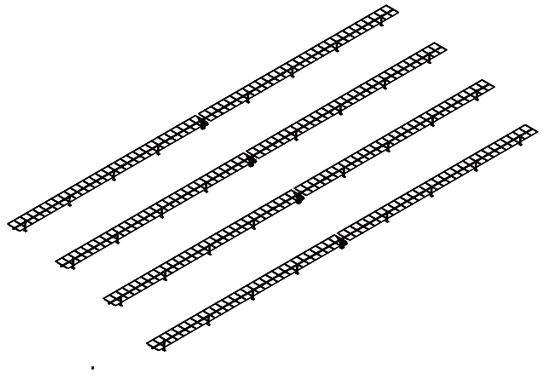
Electrical system data

Control system:MCU
Tracking accuracy:0.5°
Protection level:IP66
Ambient temperature: –40℃–70℃

Power supply: string power/small module power/AC power
System voltage: 300V–1500V (string power)
Monitoring device: remote monitoring (optional)
Communication: Wireless ZigBee/SCADA
System power consumption: around 185kWh / array / year

Reference size





One pc module in vertical, 80 pcs modules in one row

Project References

Capacity: 400MW
Location: Qihai, China

V–Link Tracking System

Tracking system Technical Data

Driving Mode: Sprocket Wheel
Installation Type: Concrete/Driven pile
Installation Capacity:
200kw-800kw/array(according to power station design and array arrangement)
Module Type: Crystalline silicon module/Thin film module/Glass-glass module
Driven Type: Sprocket Wheel driven
Tracking Range:±45°/ ±60°
Module arrangement:One module in vertical/two modules in vertical(according to power station design)
Ground coverage: around 30%-50%(according to customer requirement)
Minimum ground clearance： 0.5m (according to customer requirement)

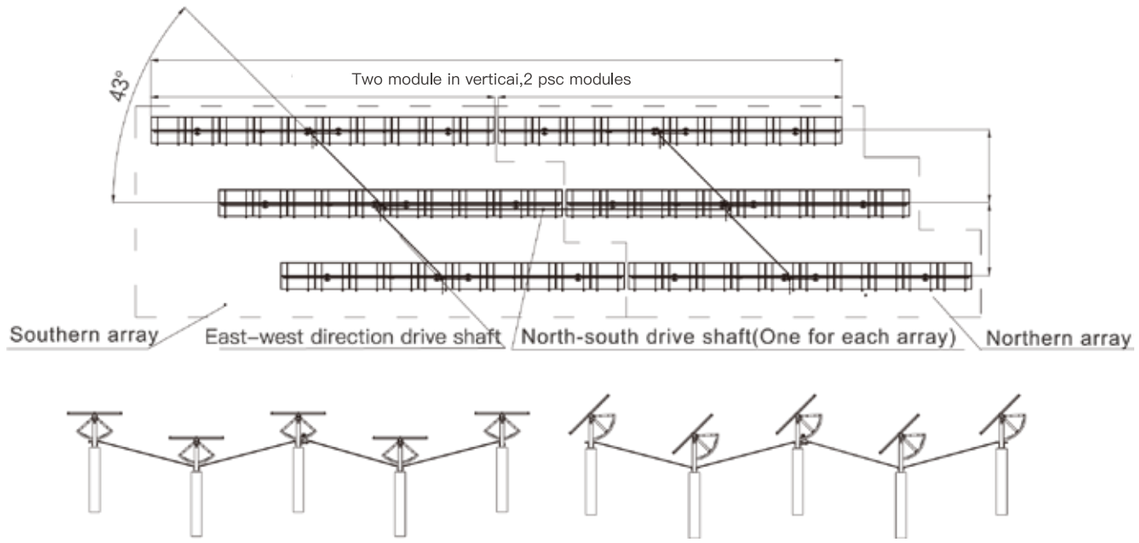
Module string QTY:20PCS(according to power station design)
Rows QTY:≤32 rows(according to power station design)
Rows distance:4.5m(according to power station design)
System life:＞25 years
Protection wind speed:≤18m/s(according to power station design)
Wind resistance:≤37m/s(according to power station design)
Warranty period:Tracking system 10 years/controlling cabinet 5 year
Executive standard: “Code for Design of Steel Structures” GB50017; “Building Structure Load Specification” GB50009; “CPP Wind Tunnel Test Report”; UL2703, UL3703, ALSC 360–10, ASCE7–10(according to customer’s requirement)

Electrical system data

Control system:PLC/MCU
Tracking accuracy:0.5°
Protection level:IP65
Ambient temperature:–40℃–70℃

Power supply: Municipal power/ transformer power supply
System voltage:380V
Monitoring device: remote monitoring (optional)
Communication: Wireless ZigBee/SCADA
System power consumption: around 185kWh / array / year

Reference size



Remarks:

Adaptation to various irregular boundaries and slopes of the installation site, the drive mechanism does not require a separate basis

Project References

Capacity： 105MW
Location: Jiangsu, China

V–Push Tracking System

Tracking system Technical Data

Driving Mode: Actuator
Installation Type: Concrete/Driven pile
Installation Capacity:200KW-400KW/array (according to power station)
Module arrangement:One module in vertical/two modules in horizontal(according to power station design)
Module Type: Crystalline silicon module/Thin film module/Glass-glass module
Tracking Range:±45°
Ground coverage:around 30%-50%
Minimum ground clearance: 0.5m (according to power station design)
Module string QTY:20PCS(according to power station design)

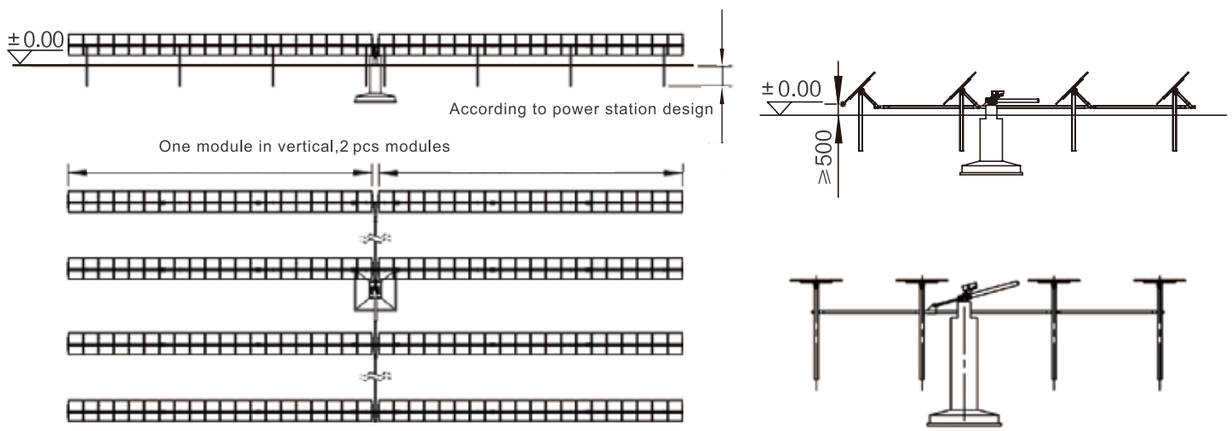
Rows QTY:≤32 rows(according to power station design)
Rows distance:4.5m(according to power station design)
System life:＞25 years
Protection wind speed:≤18m/s(according to power station design)
Wind resistance:≤37m/s(according to power station design)
Warranty period:Tracking system 10 years/controlling cabinet 5 year
Executive standard: "Code for Design of Steel Structures" GB50017; "Building Structure Load Specification" GB50009; "CPP Wind Tunnel Test Report"; UL2703, UL3703, ALSC 360–10, ASCE7–10(according to customer's requirement)

Electrical system data

Control system: PLC/MCU
Tracking accuracy:0.5°
Protection level:IP65
Ambient temperature:–40℃–70℃

Power supply: Municipal power/ transformer power supply
System voltage: 380V
Monitoring device: remote monitoring (optional)
Communication: Wireless ZigBee/SCADA
System power consumption: around 100kWh / array / year

Reference size



Project References

Tilt single axis tracking system

Versolsolar's tilt single axis tracking system is a cost-effective product developed mainly for large-scale power station construction, suitable for medium and high latitude areas. The system can automatically track the entire array with a single set of drives and controllers. The unique linkage structure and maintenance-free bearing design provide reliable system stability, low failure rate and low maintenance cost. Features. Compared with the traditional mounting structure, it can increase the annual power generation around 20%, which is an ideal choice for large power station construction.

Features

※ Large installation capacity
The maximum installation capacity of a single array is 50KWp-300KWp

※ Multi-unit linkage
Stable structure, cost-effective, suitable for investment in large power plants

※ Maintenance free design
Using the latest polymer material bearings, it can effectively prevent sand, rain and snow erosion

※ Intelligent control
Realize automatic identification protection for all kinds of weather

※ Shadow avoidance
Effectively avoid shadow occlusion problems in the morning and evening

VS-TS501-3

System Structure Diagram

Tracking system Technical Date(VS-TS501-3)

Tracking system Technical Data
Installation Capacity: 50kw-300kw/array
Installation Type: Concrete/Driven pile
Driving Mode: Actuator/Sprocket Wheel
Module Type: Crystalline silicon module/Thin film module/Glass-glass module
Driven Type: Actuator driven
Tracking Range:±45°
Tracking Accuracy:≤0.5°
Module arrangement:One module in vertical/two modules in vertical(according to power station design)
Ground coverage: around 30%-50%(according to customer requirement)
Minimum ground clearance: 0.5m(the lowest)

Module string QTY:20PCS(according to power station design)
Rows QTY:≤32 rows(according to power station design)
Rows distance:4.5m(according to power station design)
System life:＞25 years
Protection wind speed:≤18m/s(according to power station design)
Wind resistance:≤37m/s(according to power station design)
Warranty period:Tracking system 10 years/controlling cabinet 5 year
Executive standard: “Code for Design of Steel Structures” GB50017; “Building Structure Load Specification” GB50009; “CPP Wind Tunnel Test Report”; UL2703, UL3703, ALSC 360–10, ASCE7–10(according to customer’s requirement)

Electrical system data

Control system: PLC/MCU
Tracking accuracy:0.5°
Protection level:IP65
Ambient temperature:–40℃–70℃

Power supply: Municipal power/ transformer power supply
System voltage: 380V
Monitoring device: remote monitoring (optional)
Communication: Wireless ZigBee/SCADA
System power consumption: around 185kWh / array / year

Dual-Axis Tracking System

Versolsolar's Dual-Axis Tracking System is a cost-effective product developed and designed mainly for the construction of PVpower plants. It can be widely used in medium and high latitudes. The system uses two sets of drives and a set of controllers for automatic tracking and uses high-performance envelope slewing bearings for smoother operation and lower failure rates. Compared with traditional fixed mounting brackets, it can increase the annual power generation by 30%, which is an ideal choice for PV power station construction.

System Features

※ Large monomer capacity

The single array installation is10–15KWp

※ Flexible installation

Highly adaptable to the ground, quick installation without leveling the ground

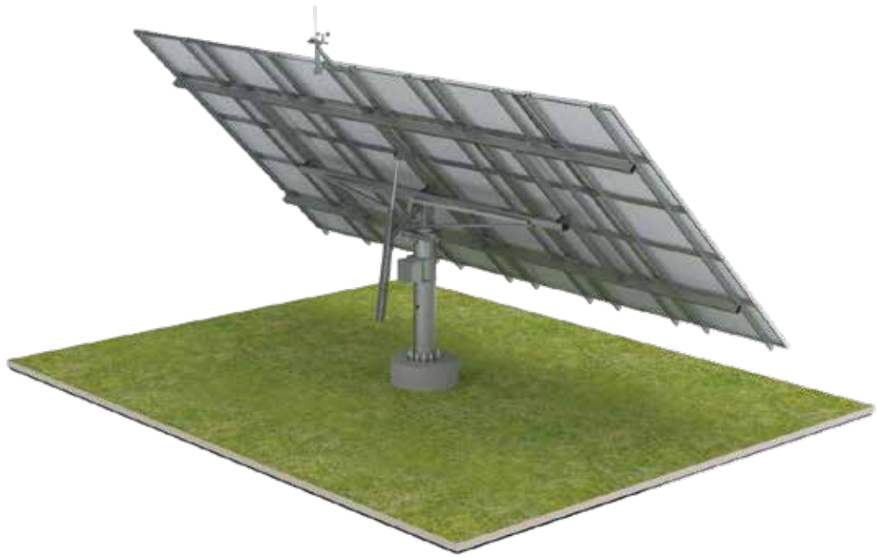
※ Intelligent control

Realize automatic identification protection for all kinds of weather

VS-TD7D-1

System Structure Diagram

Front View



Back View

Tracking system Technical Data

Installation capacity:10KW-15KW/row
Drive type: rotary reducer+ linear actuator
Tracking range: azimuth angle ±120°, elevation angle 20°-90°
Component arrangement: one module in vertical / two modules in vertical(according to customer requirements)
Ground coverage:around 30%-50% according to customer requirements
Minimum ground clearance: 0.5m (lowest point)
DC capacity: according to the type of board

System life: ＞25 years
Foundation type: concrete foundation
Protection wind speed: ≥18m/s (or customer specified)
Wind resistance: ≤33m/s (or customer specified)
Warranty period: structure 15 years warranty, electrical 5 year warranty
Executive Standard:“Code for Design of Steel Structures” GB50017; “Building Structure Load Specification” GB50009; “CPP Wind Tunnel Test Report”; UL2703, UL3703, ALSC 360–10, ASCE7–10(according to customer’s requirement)

Electrical system data

Control system: MCU
Tracking accuracy:0.5°
Protection level: IP65
Ambient temperature:–40℃–70℃

Power supply: Municipal power/ transformer power supply
System voltage: 380V
Monitoring device: remote monitoring (optional)
Communication: Wireless ZigBee/SCADA
System power consumption: around 0.4kWh / array / year

Control System

PLC Control System

System Features

Versol PLC control system uses well–known international and domestic brands, such as Siemens, Schneider, Omron, etc. The electrical process strictly implements domestic and foreign standards to improve overall reliability and life. The on–site installation uses rectangular connectors with foolproof design, which is quick, convenient and safe to install; the control box enclosure adopts a weather–resistant stainless steel enclosure with a service life of up to 25 years.

Tracking System Technical Data

Control method: PLC
Tracking accuracy: 0.5°
Anti–shadow tracking: yes
Protection level: IP65
Operating temperature: –40℃~85℃
Power supply form: factory power / box power
Communication method: wireless Zigbee/wired RS485
Monitoring system: Support SCADA, optional monitoring system
System power consumption: about 200kWh/array/year
Meteorological control: Support wind protection/wind direction identification/rain and snow protection
Scattered light gain: Supports increased power generation under scattered light

MCU Control System

System Features

Versol MCU control system uses professional design, stable and reliable components. It can be used for multiple photovoltaic tracking systems such as single row and linkage. The way of power supply is flexible, and it can adopt various methods such as string powered, tiny PV module powered, AC electricity powered. Built–in lithium battery pack, integrated BMS control, motor control, the control box enclosure is made of materials with excellent weather resistance, which can provide good protection for internal components.

Tracking System Technical Data

Control method: MCU (32–bit)
Tracking accuracy: 0.5°
Anti–shadow tracking: yes
Limit protection: Support soft limit and hard limit
Protection level: IP67
Operating temperature: –40℃~70℃
Lightning protection: Yes
Power supply form: string power
300VDC–1500VDC/small component power/AC powe
Communication method: Wireless Zigbee/Lora
Monitoring system: Support SCADA, optional monitoring system
System power consumption: about 20kWh/control box/year
Meteorological control: Support wind protection/wind direction identification/rain and snow protection
Control mode: automatic / manual / strong wind / snow / leveling / stop / rain
Scattered light gain: Supports increased power generation under scattered light
Lithium battery capacity:Standard 5.2Ah. Intelligent power management, low temperature heating.
Motor parameters: 24VDC, maximum 200W
Motor protection: Overcurrent, overload protection and failure alarm.